CALIFORNIA ENERGY COMMISSION

STAFF WORKSHOP

Staff Workshop on Biomethane Delivered via the Natural Gas Pipeline System for California's RPS

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Renewable Energy Office

Hearing Room A

September 20, 2011

1:30 - 4:30 p.m. PST

Thank you for your participation – the workshop will begin shortly.

Please take advantage of the WebEx call-back function.

Workshop Agenda

- Welcome & Housekeeping
- CEC Staff Presentation
- CPUC Staff Presentation
- ARB Staff Presentation
- Panel A: Pipeline Biomethane Delivered to CA

-BREAK-

- Panel B: Barriers to Instate Biomethane
- Public Questions & Comments
- Next Steps

WebEx Participants

- WebEx users can:
  - View slides
  - “Raise hand” to ask a question
  - “Chat” to the WebEx host
- WebEx users are muted on entry
- WebEx users will be un-muted during Q&A
- Login details are on page 4 of the Workshop Notice

Public Comments & Questions

- Comments and questions will be taken in the following order:
  - Audience in Attendance
    - Blue cards to staff
    - Business cards to court reporter
  - WebEx participants
    - Click the "Raise Hand" button to verbally ask a question
      - We can then un-mute your phone line to take your question
    - "Chat" your question to WebEx "Host"
  - Phone-only participants
    - We will un-mute all phone lines during Q&A periods
      - Please only un-mute *your* phone to ask a question

Purpose of Workshop

Staff is reexamining the Energy Commission's Renewables Portfolio Standard eligibility criteria for biomethane:

- To gain a better understanding of the issues facing regulators and stakeholders on the use of biomethane received into the natural gas pipeline for use at a natural gas facility for CA RPS.
- To provide a venue for bringing many stakeholder representatives to the table so that all perspectives are heard and information is shared.
- To consider new RPS legislation that shows a preference for generation from facilities directly connected to California.

Energy Commission Topics

- Overview of Senate Bill X1-2
- *RPS Eligibility Guidebook* requirements for facilities using biomethane
- Certified and pre-certified RPS eligible biomethane facilities
- Estimated U.S. biomethane potential
- Policy considerations for biomethane in CA RPS

New 33% RPS Legislation

- Senate Bill X1-2 (2011)
  - Increases the RPS procurement requirements from 20% by 2010 to 33% by 2020
  - Expands RPS requirements to include California publicly owned electric utilities
  - Establishes compliance periods instead of annual procurement targets
    - 20% renewables on average for the compliance period January 1, 2011 to December 31, 2013
    - 25% by December 31, 2016
    - 33% by December 31, 2020 and each year thereafter
  - Becomes effective in December 2011

What SB X1-2 says about RPS Eligible Resources

A "renewable electrical generation facility"* is a facility that:

(1) "uses biomass, …digester gas,…landfill gas…and any additions or enhancements to the facility using that technology."

(2) The facility must also satisfy one of the following requirements:

(A) The facility is located in the state or near the border of the state with the first point of interconnection to the transmission network of a balancing authority area primarily located within the state.

*eligible renewable energy resource = a renewable electrical generation facility

What SB X1-2 says about RPS Eligible Resources

(B) The facility has its first point of interconnection to the transmission network outside the state, within the WECC, and satisfies all of the following requirements:

(i) It commences commercial operations after January 1, 2005.

(ii) It will not cause or contribute to any violation of a CA environmental quality standard or requirement.

(iii) It participates in the Energy Commission's accounting system to verify compliance with the RPS.

(C) If the facility is located outside the US, it is developed and operated in a manner that is as protective of the environment as a similar facility located in the state.

What SB X1-2 does not say about RPS Eligible Resources

- Does not define the terms “biomass,” “digester gas,” or “landfill gas.”
- Is silent on whether these fuels must be used on the site of the fuel’s production to generate electricity for purposes of the RPS.
- Does not specify how these fuels, if produced offsite, should be delivered to a power plant for purposes of generating electricity.

What SB X1-2 says about the "Buckets" (Portfolio Content Categories)

Portfolio Content Categories:

Bucket #1: Eligible renewable energy resource electricity products that meet any of the following criteria:

-First point of interconnection with a California balancing authority.

-First point of interconnection with distribution facilities used to serve end users within a CA balancing authority area.

-Scheduled from the eligible renewable energy resource into a CA balancing authority without substituting electricity from another source.

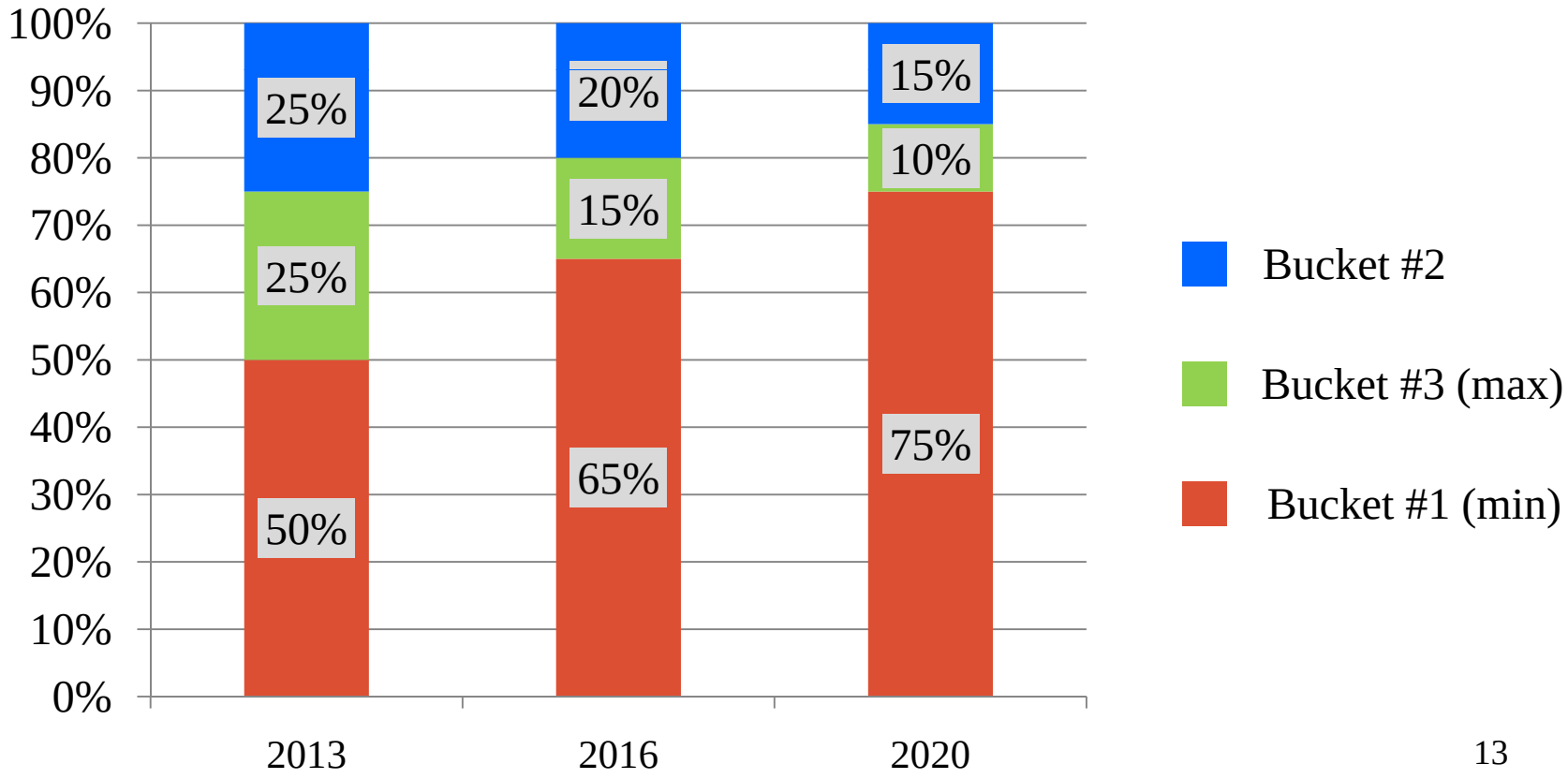
-Have an agreement to dynamically transfer electricity to a CA balancing authority.

What SB X1-2 says about the "Buckets"

Bucket #2: Firmed and shaped eligible renewable energy resource electricity products providing incremental electricity and scheduled into a CA balancing authority.

Bucket #3: Eligible renewable energy resource electricity products, or any fraction of the electricity generated, including unbundled renewable energy credits, that do not qualify under the criteria of buckets #1 or #2.

Minimum RPS requirement for generation in Bucket #1 and increasing over time illustrates preference for direct connection between renewables and California customers.



RPS Eligibility Guidebook Requirements for Biomethane

- RPS-eligible biogas is derived from RPS-eligible fuel including biomass, digester gas, and/or landfill gas.
- Biogas may be converted to electricity in an RPS-eligible electric generating facility located at the fuel processing site or it may be transported to an RPS eligible electric generating facility.
- For biomethane, receipt point (injection point) may be any interstate pipeline in the WECC or that is connected to a pipeline that delivers gas into California, and delivery point must be to CA, or to the generating facility if the facility is located outside CA.

RPS Eligibility Guidebook Requirements for Biomethane

- Quantifying RPS-eligible energy production requires accurate metering of the volume of the biomethane received into the pipeline system and its measured heat content.
- The applicant must enter into contracts for the delivery (firm or interruptible) or storage of the gas with every pipeline or storage facility operator from the receipt point to delivery point.
- No party may sell, trade, give away, claim, or otherwise dispose of any of the attributes that would prevent the resulting electricity from being compliant with the definition of “green attributes.”

RPS Eligible Facilities Using Biomethane

- 32 facilities have applied for RPS eligibility.
- Eleven facilities have been approved for certification.
  - Planned total fuel procured is ~3 percent pipeline biomethane, which is ~105 MW of biomethane capacity from certified facilities.
  - RECs created are based on actual generation and fuels procured.
- Nine facilities are approved for precertification that have not yet applied for certification.
- Applications from ten facilities are under review; five for certification, five for precertification.
- Two facilities have been denied certification.

Estimated Biomethane Potential from U.S. Landfills

Area Covered	Number of Landfills	Waste in Place (tons)	MMBTU per day[2]	Potential onsite Generation (GWh/year)[3*]	Potential Generation as Pipeline Biomethane (GWh/year)[4*]	Capacity (MW) with Capacity Factor of 0.75 for Biomethane
Lower 48 States and Alaska	486	1,536,421,251	335,849	10,477	16,345	2,488
WECC	89	398,255,759	87,056	2,716	4,237	645
California	36	221,195,943	48,352	1,508	2,353	358

Source: http://www.epa.gov/lmop/projects-candidates/candidates.html

*** Potential onsite generation and potential generation as pipeline biomethane are both listed for comparative purposes only,.**

[1]For this purpose WECC includes only Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[2]Assumptions: 300 scfm of LFG is available for utilization for every million tons of WIP

Methane content of LFG is 50%

Methane heat content is 1,012 Btu/scf methane

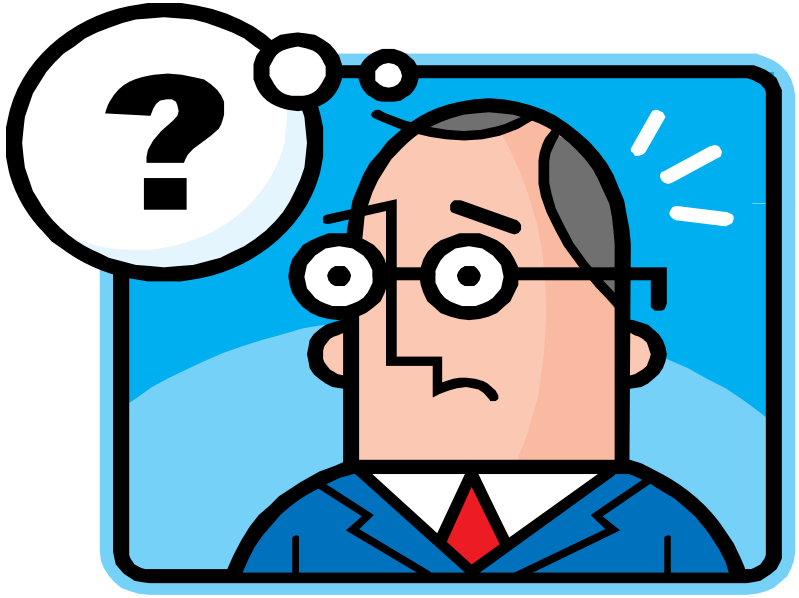
[3]Weighted average heat rate for LFG-fired engines, turbines, and boiler/steam turbines is 11,700 Btu/kWh

[4]A heat rate of 7,500 BTU/KWh was used

Options for Biomethane Transportation Contract Types for RPS

- **Forward haul transportation:** Receipt point of biomethane into the pipeline system could be limited to pipelines with physical, or potential, directional flow to delivery point.
  - Firm forward haul transportation: Delivery have first priority over interruptible transports.
  - Interruptible forward haul transportation: Delivery is not guaranteed.
- **Backhaul transportation:** Any interstate pipeline that is connected to a pipeline that delivers gas into CA regardless of directional flow (current requirement).
- **Exchange (gas swap):** Biomethane sources would be available regardless of receipt point or directional flow of gas.

Comments and Questions



Next Steps

- **Public comments are due by 5 pm on Sept. 30, 2011**
  - Follow filing instructions in Workshop Notice
- Join Energy Commission's RENEWABLE listserver to ensure notice of RPS proceedings
- Staff workshop on proposed changes to RPS Eligibility Guidebook and Overall Program Guidebook planned for early October 2011
  - Staff draft of proposed guidebook changes will be released late September
  - Energy Commission adoption of Sixth Edition of RPS Eligibility Guidebook and Overall Program Guidebook planned by end of 2011

Contact Information

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Additional Slides

What SB X1-2 says about Renewable Energy Credits

Section 399.12 of the Public Utilities Code defines a "Renewable energy credit" as a "certificate of proof associated with the generation of electricity from an eligible renewable energy resource, issued through the accounting system established by the Energy Commission pursuant to Section 399.25, that one unit of electricity was generated and delivered by an eligible renewable energy resource."

What SB X1-2 says about the "Buckets"

Category	Procurement Requirement	Compliance Period
Bucket #1 (connected to CA BA or dynamic transfer)	Minimum 50%	2011-2013
	Minimum 65%	2014-2016
	Minimum 75%	2020 and thereafter
Bucket #2 (firmed & shaped)	No requirement	All periods
Bucket #3 (unbundled)	Maximum 25%	2011-2013
	Maximum 15%	2014-2016
	Maximum 10%	2020 and thereafter